

CURRICULUM VITAE
Alan Lee Fey

March 30, 2001

Current Address:

US Naval Observatory
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Born:

8 May 1956, Beardstown, Illinois USA

Education:

Ph.D. 1989, Physics, University of Iowa
M.S. 1984, Astronomy, University of Iowa
B.S. 1982, Astronomy, University of Illinois

Professional Experience:

- Astronomer, US Naval Observatory, *1994–present*
- Research Astronomer, Naval Research Lab, *1991–1994*
- NRC/NRL Cooperative Research Associate, Naval Research Lab, *1989–1991*
- Research Assistant, University of Iowa, *1985–1989*

Awards:

- The 1998 USNO Simon Newcomb Award for Scientific Research Achievement

Professional Memberships:

- International Astronomical Union
- American Astronomical Society
- Astronomical Society of the Pacific
- Union of Radio Scientists International
- American Physical Society
- Aircraft Owners and Pilots Association

Professional Service:

- IAU Working Group for the Maintenance of the ICRS, *1997–present*
- National Radio Astronomy Observatory User’s Committee, *1996–1999*
- IAU Working Group on Reference Frames (WGRF), *1995–1997*
- IAU WGRF Sub-group for the Establishment of the International Celestial Reference Frame, *1995–1997*

Theses:

- Ph.D., Physics, University of Iowa, *1989* “VLA and VLBI Angular Broadening Measurements: The Distribution of Interstellar Scattering at Low Galactic Latitudes”
- M.S., Astronomy, University of Iowa, *1984* “VLBI Observations at 22.2 Gigahertz of the Radio Source 0552 + 398 (DA 193)”

Special Skills:

- Extensive experience using the Goddard Space Flight Center/United States Naval Observatory CALC/SOLVE data reduction software package for analyzing astrometric/geodetic Very Long Baseline Interferometry data.
- Extensive experience using the National Radio Astronomy Observatory Astronomical Image Processing System interferometric data reduction and imaging software package on both Very Large Array data and Very Long Baseline Array data.
- Extensive experience using the CalTech Very Long Baseline Interferometry data reduction and imaging software package (in particular DIFMAP) on both Mark II Very Long Baseline Interferometry data and Very Long Baseline Array data.
- Extensive experience programing with the FORTRAN computer programming language.
- Modest experience programing with the C computer programming language.
- Extensive experience managing UNIX workstations. Most experience involves Redhat Linux and Sun’s Solaris operating system (OS) with some additional experience with IBM’s AIX OS and SGI’s Irix OS.

REFERENCES

Refereed Publications

- Lazio, T. Joseph W. & **Fey, A. L.** 2001, ApJ, submitted
“Multi-frequency VLBA Observations of the Compact Double B2 2050+36:
Constraints on Interstellar Scattering Revisited”
- Desai, K. M. & **Fey, A. L.** 2001, ApJ, in press
“Anisotropic Interstellar Scattering Towards the Cygnus Region”
- Fey, Alan L.**, Boboltz, David A., Gaume, Ralph A., Eubanks, T. Marshall, & Johnston,
Kenneth J. 2001, AJ, 121, 1741
“Extragalactic Radio Source Selection for Use in Directly Linking Optical Astrometric
Observations to the Radio Reference Frame”
- Lazio, T. Joseph W., Gaume, R. A., Claussen, M. J., **Fey, A. L.**, Fiedler, R. L., &
Johnston, K. J. 2001, ApJ, 546, 267
“The Extreme Scattering Event toward 1741-038: H I Absorption”
- Fey, Alan L.** & Charlot, Patrick 2000, ApJS, 128, 17
“VLBA Observations of Radio Reference Frame Sources. III. Astrometric Suitability
of an Additional 225 Sources”
- Lazio, T. Joseph W., **Fey, A. L.**, Dennison, Brian, Mantovani, F., Simonetti, J. H.,
Alberdi, Antonio, Foley, A. R., Fiedler, R., Garrett, M. A., Hirabayashi, Hisashi,
Jauncey, D. L., Johnston, K. J., Marcaide, Jon, Migenes, Victor, Nicolson, G. D., &
Venturi, Tiziana 2000, ApJ, 534, 706
“The Extreme Scattering Event toward PKS 1741-038: VLBI Images”
- Piner, B. G., Unwin, S. C., Wehrle, A. E., Edwards, P. G., **Fey, A. L.**, & Kingham, K. A.
1999, NewAR, 43, 711
“VSOP and Ground-based VLBI Imaging of the TEV Blazar Markarian 421”
- Piner, B. G., Unwin, S. C., Wehrle, A. E., Edwards, P. G., **Fey, A. L.**, & Kingham, K. A.
1999, ApJ, 525, 176
“VSOP and Ground-based VLBI Imaging of the TEV Blazar Markarian 421 at
Multiple Epochs”
- Ma, C., Arias, E. F., Eubanks, T. M., **Fey, A. L.**, Gontier, A. -M., Jacobs, C. S., Sovers,
O. J., Archinal, B. A., & Charlot, P. 1998, AJ, 116, 516
“The International Celestial Reference Frame as Realized by Very Long Baseline
Interferometry”
- Clegg, A. W., **Fey, A. L.**, & Lazio, T. J. W. 1998, ApJ, 496, 253
“The Gaussian Plasma Lens in Astrophysics. Refraction”
- Fey, A. L.**, Eubanks, T. M., & Kingham, K. A. 1997, AJ, 114, 2284
“The Proper Motion of 4C 39.25”

- Hummel, C. A., Krichbaum, T. P., Witzel, A., Wüllner, K. H., Steffen, W., Alef, W., & **Fey, A.** 1997, A&A, 324, 857
“The Radio Jet of Quasar 0153+744”
- Fey, A. L.** & Charlot, P. 1997, ApJS, 111, 95
“VLBA Observations of Radio Reference Frame Sources. II. Astrometric Suitability Based On Observed Structure”
- Fey, A. L.**, Clegg, A. W., & Fiedler, R. L. 1996, ApJ, 468, 543
“VLBI Observations of Eight Extreme Scattering Event Sources: Milliarcsecond Scale Structure”
- Fey, A. L.**, Clegg, A. W., & Fomalont, E. B. 1996, ApJS, 105, 299
“VLBA Observations of Radio Reference Frame Sources. I.”
- Clegg, A. W., **Fey, A. L.**, & Fiedler, R. L. 1996, ApJ, 457, L23
“VLA Polarization Observations of the Extragalactic Source 1741 – 038 During an Extreme Scattering Event”
- Fey, A. L.**, Gaume, R. A., Claussen, M. J., & Vrba, F. J. 1995, ApJ, 453, 308
“Near-Infrared and Very High Sensitivity VLA 2 cm Continuum Observations of the HII Region G29.96–0.02”
- Johnston, K. J., **Fey, A. L.**, Zacharias, N., Russell, J. L., *et al.* 1995, AJ, 110, 880
“A Radio Reference Frame”
- Reynolds, J. E., Jauncey, D. L., Russell, J. L., King, E. A., McCulloch, P. M., **Fey, A. L.**, Johnston, K. J. 1994, AJ, 108, 725
“A Radio Optical Reference Frame. VII. Additional Source Positions from a Southern Hemisphere Short Baseline Survey”
- Gaume, R. A., **Fey, A. L.**, & Claussen, M. J. 1994, ApJ, 432, 648
“VLA Recombination Line Observations of the Cometary HII Region G34.3+0.2: Dynamics and Physical Properties”
- Fey, A. L.**, Gaume, R. A., Nedoluha, G. E., & Claussen, M. J. 1994, ApJ, 435, 738
“VLA Spectral Line Observations of the HII Complex G34.3+0.2”
- Fey, A. L.**, Russell, J. L., Johnston, K. J., Ma, C., Hall, D. M., & Holdenried, E. R. 1994, AJ, 107, 385
“A Radio Optical Reference Frame. VI. Additional Source Positions in the Northern Hemisphere”
- Russell, J. L., Jauncey, D. L., Reynolds, J. E., de Vegt, C., Zacharias, N., Ma, C., **Fey, A. L.**, Johnston, K. J., White, G. L., Kawaguchi, N., & Takahashi, Y. 1994, AJ, 107, 379
“A Radio Optical Reference Frame. V. Additional Source Positions in the Mid-Latitude Southern Hemisphere”

- Fey, A. L.** & Mutel, R. L. 1993, ApJ, 404, 197
“608 MHz VLBI Observations of the Compact Double Radio Source 2050+364:
Constraints on Interstellar Scattering”
- Fey, A. L.**, Russell, J. L., Ma, C., Johnston, K. J., Archinal, B. A., Carter, M. S.,
Holdenried, E. R., Yao, Z., de Vegt, C. & Zacharias, N. 1992, AJ, 104, 891
“A Radio Optical Reference Frame. IV. Additional Radio Source Positions in the
Northern Hemisphere”
- Fey, A. L.**, Claussen, M. J., Gaume, R. A., Nedoluha, G. E., & Johnston, K. J. 1992, AJ,
103, 234
“The Radio Appearance of Compact HII Regions: VLA Observations of G31.28+0.06,
G33.92+0.11, and G34.25+0.14”
- Fey, A. L.**, Spangler, S. R., & Cordes, J. M. 1991, ApJ, 372, 132
“VLA and VLBI Angular Broadening Measurements: The Distribution of Interstellar
Scattering at Low Galactic Latitudes”
- Fey, A. L.**, Spangler, S. R., & Mutel, R. L. 1989, ApJ, 337, 730
“VLBI Angular Broadening Measurements in the Cygnus Region”
- Spangler, S., Fuselier, S., **Fey, A.**, & Anderson, G. 1988, JGR, 93, 845
“An Observational Study of MHD Wave-induced Density Fluctuations Upstream of
the Earth’s Bow Shock”
- Spangler, S. R., **Fey, A. L.**, & Cordes, J. M. 1987, ApJ, 322, 909
“VLA and Low-frequency VLBI Observations of the Radio Source 0503 + 467:
Austere Constraints on Interstellar Scattering in Two Media”
- Fey, A. L.**, Spangler, S. R. & Myers, S. T. 1986, AJ, 91, 127
“15 GHz VLA Observations of the Radio Galaxies 3C 166 and 3C 411”
- Fey, A. L.**, Spangler, S. R., Mutel, R. L., & Benson J. M. 1985, ApJ, 295, 134
“VLBI Observations at 22.2 Gigahertz of the Radio Source 0552 + 398 (DA 193)”

Non-refereed But Citable Publications

- Ma, C., Arias, E. F., Eubanks, T. M., **Fey, A. L.**, Gontier, A. -M., Jacobs, C. S., Sovers, O. J., Archinal, B. A., & Charlot, P. 1997, in *IERS Technical Note 23, Paris Observatory*
“The International Celestial Reference Frame Realized by VLBI”
- Ma, C. & Feissel, M. (ed) 1997, “Definition and Realization of the International Celestial Reference System by VLBI Astrometry of Extragalactic Objects,” IERS Technical Note 23, Observatoire de Paris

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- Fey, A. L.**, Johnston, K. J., Jauncey, D. L., Reynolds, J. E., Tzioumis, Anastasios, Lovell, J. E. J., McCulloch, P., Costa, M. E., Ellingsen, S. J., & Nicolson, G. D. 2000, in Proceedings of the First IVS General Meeting, edited by N. R. Vandenberg, NASA/CP-2000-209893
“A Southern Hemisphere Observing Program to Strengthen the ICRF”
- Fey, A. L.**, Boboltz, D. A., Gaume, R. A., & Johnston, K. J. 2000, in Proceedings of the First IVS General Meeting, edited by N. R. Vandenberg, NASA/CP-2000-209893
“Improving the ICRF Using the Radio Reference Frame Image Database”
- Fey, A. L.** 2000, in Proceedings of IAU Colloquium 180, held at The U.S. Naval Observatory; Eds. Johnston, K. J. , McCarthy, D. D., Luzum, B. J., Kaplan, G. H., p. 20
“Limits on Astrometric Accuracy”
- Fey, A. L.** 2000, in Proceedings of IAU Colloquium 180, held at The U.S. Naval Observatory; Eds. Johnston, K. J. , McCarthy, D. D., Luzum, B. J., Kaplan, G. H., p. 40
“Improving the Accuracy of Radio Astrometry”
- Gaume, R. A., **Fey, A. L.**, Boboltz, D. A., & Johnston, K. J. 1999, in “Working on the Fringe: Optical and IR Interferometry from Ground and Space.” Proceedings from ASP Conference Vol. 194. Edited by Stephen Unwin and Robert Stachnik. ISBN: 1-58381-020-X (1999), p.134 “Placing the SIM All-Sky Astrometric Grid onto the ICRS”
- Fey, A. L.** & Charlot, P. 1997, in Proceedings of ”IAU Colloquium 164: Radio Emission from Galactic and Extragalactic Compact Sources” (ASP Conf. Series. Vol 144; Eds. J.A. Zensus, G.B. Taylor, & J.M. Wrobel)
“VLBA Observations of Radio Reference Frame Sources. II. Astrometric Suitability Based On Observed Structure”
- Zacharias, N., **Fey, A. L.**, Russell, J. L., & Johnston, K. J. 1994, in proceedings of IAU Symposium 166, IAU General Assembly, The Hague, The Netherlands
“RORF – a Radio Optical Reference Frame”
- J. L. Russell, **A. L. Fey**, D. L. Jauncey, K. J. Johnston, N. Kawaguchi, A. Kemball, E. A. King, C. Ma, G. MacLeod, D. F. Malin, P. M. McCulloch, G. Nicolson, J. E. Reynolds, D. Shaffer, Y. Takahashi, C. de Vegt, G. L. White, & N. Zacharias 1993, in Sub–arcsecond Radio Astronomy, Proceedings of the Nuffield Radio Astronomy Laboratories’ conference, Manchester, England, 20–24 July 1992, R. J. Davis and R. S. Booth, eds. (Cambridge Univ. Press)
“The Radio/Optical Reference Frame: Progress and Plans”
- Fey, A. L.**, Spangler, S. R., & Mutel, R. L. 1988, in Radio Wave Scattering in the Interstellar Medium, Proceedings of the AIP Conference, San Diego, CA, January

18–19, 1988, (New York: American Institute of Physics), pp. 190–194
“VLBI Angular Broadening Measurements in the Cygnus Region”

Spangler, S. R., **Fey, A. L.**, & Mutel, R. L. 1988, in Proceedings of the 129th Symposium of the IAU held in Cambridge, Massachusetts, USA May 10-15 1987 (Eds. M.J. Reid, J.M. Moran) *The Impact of VLBI on Astrophysics and Geophysics*, pp. 303–304
“Measurements of Interstellar Scattering in the Cygnus Region”

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Abstracts

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“Scatter Broadened Images of 2023+336”

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“VSOP and Ground-based VLBI Imaging of the TeV Blazar Markarian 421 at Multiple Epochs”

Gaume, R. A., **Fey, A. L.**, Vrba, F. J., Zacharias, N., Henden, A. A., & Guetter, H. H. 1999, AAS, 194, 50.22
“PKS 1445-161: A New Gravitational Lens?”

Desai, K. M. & **Fey, A. L.** 1999, AAS, 194, 50.09
“Anisotropic Interstellar Scattering Towards The Cygnus Region”

Fey, A. L. & Desai, K. M. 1999, AAS, 194, 47.16
“Interstellar Scattering of 2023+336”

T. Joseph W. Lazio, **A. L. Fey**, & B. Dennison 1998, BAAS, Vol. 30, No. 2, 880
“Extreme Scattering Events”

K. M. Desai & **A. L. Fey** 1998, BAAS, Vol. 30, No. 2, 879
“Anisotropic Interstellar Scattering Towards The Cygnus Region”

A. L. Fey, K. A. Kingham, & R. A. Gaume 1998, BAAS, Vol. 30, No. 2, 837
“The USNO Radio Reference Frame Image Database”

K. Desai & **A. Fey** 1997, BAAS, Vol. 29, No. 5, 1298
“Measurements of Time Variable Anisotropy in the Interstellar Medium”

A. Fey, T. M. Eubanks, & K. A. Kingham 1997, BAAS, Vol. 29, No. 5, 1249
“The Proper Motion of 4C 39.25”

A. Fey & P. Charlot 1996, BAAS, Vol. 28, No. 4, 1292
“VLBA Observations of Radio Reference Frame Sources. II. Source Classification Based on Intrinsic Structure”

Ralph L. Fiedler, Andrew W. Clegg, & **Alan L. Fey** 1995, BAAS, Vol. 27, No. 4, 1305
“Diffraction Simulations of Interstellar Lensing”

A. L. Fey, A. W. Clegg, & E. B. Fomalont 1995, BAAS, Vol. 27, No. 4, 1301
“VLBA Observations of Radio Reference Frame Sources. I.”

A. Fey, A. Clegg, & R. Fiedler 1995, BAAS, Vol. 27, No. 2, 863
“VLBI Observations of Nine ESE Sources: Milliarcsecond Scale Structure”

Andrew W. Clegg, **Alan L. Fey**, & Ralph L. Fiedler 1995, BAAS, Vol. 27, No. 2, 863
“VLA Polarization Observations of the Extragalactic Source 1741–038 During an Extreme Scattering Event”

- A. Fey**, R. Gaume, & M. Claussen 1994, BAAS, Vol. 26, No. 4, 1454
“High Sensitivity VLA Continuum Observations of G29.96–0.02,”
- A. Fey**, N. Zacharias, J. Russell, K. Johnston, B. Archinal, M. Carter, C. de Vegt, M. Eubanks, D. Florkowski, D. Hall, D. Jauncey, C. Ma, D. McCarthy, J. Reynolds, 1994, BAAS, Vol. 26, No. 2, 901
“A Radio Reference Frame Based on 15 Years of Mark–III VLBI Observations”
- Ralph A. Gaume, **Alan L. Fey**, & Mark J Claussen 1993, BAAS, Vol. 25, No. 4, 1309
“The G34.3+0.2 Ultracompact Cometary HII Region: Evidence of Interaction with External Winds”
- A. L. Fey**, Ralph A. Gaume, & Mark J Claussen, 1993, BAAS, Vol. 25, No. 4, 1309
“VLA Spectral Line Observations of the HII Complex G34.3+0.2”
- J. L. Russell, **A. L. Fey**, K. J. Johnston, N. Zacharias, & C. de Vegt, 1993, BAAS, Vol. 25, No. 4, 1298
“Comparison of the Radio/Optical Reference Frames”
- A. Fey**, & R. Gaume, 1993, BAAS, Vol. 25, No. 2, 854
“The Velocity Structure of the Cometary HII Region G34.26+0.15”